



129 MAR 1984

MEMORANDUM FOR: (See Distribution List)

FROM: [redacted]

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Chief, Strategic Resources Division
Office of Global Issues

SUBJECT: Afghanistan: 1983 Grain Assessment [redacted]

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1. The attached memorandum assesses the 1983 grain production in Afghanistan. We found the 1983 Afghan harvest was good in most areas, about the same as 1982. [redacted]

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2. This assessment was produced by [redacted]
[redacted] Agricultural Assessments Branch, Strategic Resources Division, Office of Global Issues. [redacted]

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3. Comments and questions are welcome and may be addressed to the Chief, Agricultural Assessments Branch, [redacted]

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Attachment:

Afghanistan: 1983 Grain Assessment

GI M 84-10059, March 1984 [redacted]

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GIM 84-10059

NGA Review Completed



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SUBJECT: Afghanistan: 1983 Grain Assessment

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OGI/SRD/AAB, (March 1984)

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Central Intelligence Agency



Washington, D.C. 20505

DIRECTORATE OF INTELLIGENCE

22 MAR 1984

Afghanistan: 1983 Grain AssessmentSummary

The 1983 grain harvest in Afghanistan was good in most areas, approximately the same as 1982. The major exception was in the Khowst valley where the harvest was delayed and the crop was poor. The 1983 wheat harvest, the primary grain crop and staple of Afghanistan, is estimated at approximately 3 million metric tons, sufficient to supply the rural population and to support the insurgent forces. Urban areas are experiencing some food shortages, largely due to the breakdown in the transportation and distribution system, necessitating the continued importation of substantial amounts of Soviet grain. Military activity appears to have had no significant effect on overall grain production in 1983.

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This paper was prepared by

Agricultural Assessments Branch, Strategic Resources Division, Office of Global Issues (AAB/SRD/OGI) with methodological support provided by

Analytic Methods Branch, Analytic Support Group. Comments and questions may be addressed to Chief, AAB/SRD/OGI

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Afghanistan: 1983 Grain AssessmentBackground

Most of Afghanistan consists of mountains, desert, and forest, and is unsuitable for agriculture. The more productive soils, comprising only about 15 percent of the land, are found in the valleys and basins. Even in such locations, however, the cultivation is restricted to about half the arable area (about 4 million of the total 8 million hectares), largely because of limited supplies of water. Grains account for nearly 90 percent of the total cropped area, with wheat occupying 60 percent of the area devoted to grain production. Other grains grown include rice, barley, and corn. Fruits and vegetables occupy roughly 6 percent, and industrial crops of cotton, sugar beets, and oilseeds, as well as poppies, make up the remainder. Agriculture, although it employs three quarters of the working population, is largely at a subsistence level with little use of chemical fertilizer or pesticides. Farming operations are almost totally non-mechanized, with men and draft animals providing the basic power needs. [redacted]

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Approximately 3.5 million people, out of a prewar population estimated at 15.3 million, have fled the country to Pakistan and Iran. Rapid growth, however, brought the population back to an estimated 14.3 million by 1983. Previously, 85 percent of the total population was rural; however, since the Soviet invasion most of the refugees have been from the agrarian and pastoral sectors. Many other former members of these sectors have also migrated to the cities. [redacted]

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This outflow of the population from the rural areas has caused strains on the resources necessary for agricultural production which accounts for more than 60 percent of the gross domestic product. Nevertheless, the country has generally kept food production up to prewar levels. Food shortages, mainly in the cities but also in a few small isolated rural areas, primarily are due to disruption of the transportation and marketing networks. Although sufficient manpower to sow and harvest field crops does not now appear to be a serious problem, the routine maintenance of vineyards, orchards, and irrigation networks is being neglected, and eventually there will be some adverse affect on production. [redacted]

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1983 Weather Conditions

Limited weather information indicates that the major agricultural regions of Afghanistan experienced favorable weather during 1983. Although accurate weather observations for the country are largely unavailable, imagery [redacted] 25X1

[redacted] show that nearly normal weather patterns prevailed during the year. Periodic weak to moderate storm systems, depicted on weather satellite imagery, brought precipitation levels to near or slightly less than the annual average for the region. Imagery also indicates that mountain snowcover, necessary for irrigation during the spring runoff, nearly equaled that of the previous winter and was adequate to replenish well water and supply the intricate irrigation network. Also, lakes and reservoirs observed on reconnaissance imagery were at near capacity through most of the season. During 1983 there were no reports of significant flooding or droughts which would have caused extensive crop damage. [redacted]

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The 1983 Grain Crop

We estimate the Afghans harvested approximately 3 million tons of wheat, the country's principal grain, in 1983. Our estimate is close to the FAS estimates and pronouncements of the Afghan government. It is based on a comparison of historical and current weather data, imagery, press [redacted]

[redacted] Both the Afghan press and Foreign Agriculture Service (FAS) of the US Department of Agriculture reported a good harvest for 1983, one that was slightly better than that of 1982. However, Afghan official production information normally is very limited and unreliable, and the FAS estimates are made without the benefit of classified imagery. [redacted]

FAS estimates that 2.86 million tons of wheat were harvested in 1983 on a sown area of 2.6 million hectares. This estimate is close to that of the Afghan government, which estimates a harvest of 2.9 million tons on an as yet unreported sown area. FAS estimated that total area harvested to wheat increased from 2.34 million hectares in 1978 to 2.6 million hectares in 1982 and 1983, which is about 12 percent higher than the official Afghan estimate for 1982 of 2.31 million hectares. Assuming the FAS area estimates are reliable, there has been an increase in area cultivated since the Soviet invasion. [redacted]

Our assessment of the 1983 grain crop relies most heavily on imagery interpretation. The imagery assessment of the crop is based on a statistical sample composed of 20 strip targets (approximately 10 NM by 30 NM in size) acquired twice during the growing season, and on weekly or bimonthly coverage of 36 point targets. Total coverage of approximately 6360 square miles was acquired between April and September. This imagery constitutes a sample of about 3 to 4 percent of the total growing area dispersed throughout the grain-growing regions. Indeed, there is at least one imagery coverage this year in each grain-producing province and comparative coverage from the previous year over many areas. As with any sample, it is possible that some small aberrations in growing conditions were not observed, but the overall quality of the grain crop should be quite apparent from a sample of this size. [redacted]

It has been suggested from the press [redacted] that the fighting in Afghanistan has caused extensive fire or other damage to the crops, but the available imagery does not bear this out. There is no evidence of fire damage to crops on the imagery exploited. In fact, even if only one percent of the crops were damaged by fire, the chance of missing this on the imagery is less than 1 in 100. Moreover, since damage may be more likely in regions of heavy fighting, and these regions are also more likely to be imaged for military assessments, we believe no substantial damage has occurred. [redacted]

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Regional Crop Assessment

Eastern Valleys (Baghlan, Kapisa, Laghman, Konarha, Parvan, Vardak, Ghazni, Paktia, Paktika, Lowgar, Nangarhar, and Kabul)

This region, consisting of the twelve provinces surrounding Kabul, although mostly mountainous, contains some of the most fertile and high-yielding agricultural valleys in Afghanistan. It is, however, also the region most affected by the Soviet occupation. The major valleys and basins include Panjsher, Charikar, Nangarhar, Konar, Ghazni, Lowgar, and Khowst.

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The long narrow Panjsher Valley in Kapisa Province 60 miles northeast of Kabul experienced less insurgent fighting in 1983 than in the previous two years and agricultural activity appears to have returned to normal. In the few areas where imagery showed that crops had been destroyed by military activity in 1982, no damage was observed in 1983, and those areas produced a good crop. Throughout most of the valley the crops appeared to be in as good or better condition than they were in 1982. A few fields had lodged¹ grain, an indication of potentially good yields (see Figure 1). The harvest began on schedule in late June and yields were in the good range. This year a slightly higher percentage of grainfields appeared to be harvested in the many smaller side valleys as well as the main valley. food

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 shortages here in early 1983, but supplies had become plentiful. many of the valley residents who left earlier had returned and were able to farm again.

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The grain crop in the densely cultivated basin near Charikar, 40 miles north of Kabul, appeared in good to excellent condition (see Figure 2). Very few fields were fallow and many had lodged grain when harvesting commenced in early June. Yields in this basin, as in 1982, were better than in the nearby Panjsher Valley. This fertile valley traditionally produced surplus grain for the Kabul region during good years and could possibly have done so in 1983.

In the Nangarhar Valley surrounding Jalalabad, 40 miles east of Kabul, yields also appeared in the good to excellent range in 1983, the same or better than in 1982 and as good as those in the Charikar area. Imagery also indicated a good corn crop here in late summer. In spite of being located near the main road connecting Kabul and Peshawar, Pakistan, military activity had little if any affect on grain production here in 1983.

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Grain yields appeared slightly lower in the adjacent Konar Valley along the Pakistan border (see Figure 3). This valley has experienced some loss of

¹ Lodging is a condition that occurs when grain stalks bend or break and the crop forms a flattened or tangled mass. Generally, lodging results when the weight of the mature head cannot be supported by the stalk, and in these circumstances it can indicate good yields. However, wind, rain or hail also can cause the condition.

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population since the beginning of the Soviet occupation, and a few large tracts of agricultural land have remained abandoned. A large fire, possibly caused by military activity, was observed on the imagery in one of these abandoned areas. Also, vehicle tracks, indicating minor crop damage, were seen in some cultivated areas. [redacted]

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Although imagery indicated that yields in Ghazni and Vardak provinces were not as good as in the Nangarhar and Charikar basins, the 1983 crop still appeared considerably better than that observed during 1982. Near the main highway connecting Kabul and Qandahar, which traverses the center of Ghazni province, some vehicles had driven off the road and caused minor damage to agricultural areas. There are more fallow fields in this area than there are in the Nangarhar and Charikar basins. Also, a few small areas appearing abandoned in 1982, were again left uncultivated in 1983. [redacted]

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Yields in the Shomali Region around Kabul were only in the fair range. Although the crop appeared to be in good condition early in the season, imagery showed that in many areas the beginning of the harvest was delayed two to three weeks. Most of the crop was heavily lodged before cutting began in early July. This delay probably lowered yields in the affected areas (see Figure 4). Only small areas remained untilled this year, but some fields had been taken over for military purposes. Intense fighting in this area undoubtedly reduced grain production in this province. [redacted]

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Yields in the Lowgar Valley south of Kabul were also not as high as those in the Nangarhar and Charikar basins. Similar to the Shomali Region, the harvest did not begin until July and, even though the grain was heavily lodged, small and sparse shocks in many fields indicated some poor yields (see Figure 5). Relatively large abandoned tracts appeared uncultivated in this valley, where [redacted] some villages had been subjected to bombing. [redacted] the 1983 crop here was better than that in 1982, although there were still manpower shortages during the harvest. [redacted]

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The Khowst Valley in Paktia Province continued to suffer from severe agricultural production problems during 1983. This province has experienced some of the most intense fighting since the Soviet invasion in 1979, and, [redacted]

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large numbers of refugees have left. May [redacted] and June imagery showed that much of this year's grain crop in many large tracts was thin and spotty. Many fields had not been planted at all, and some fairly large tracts of land appeared abandoned (see Figure 6). Only a few fields were actually harvested and much of the remaining grain crop appeared to have been left in the fields to rot. Some areas of the province, however, did appear to have a good harvest, and some spring grains were observed being harvested in September. In late summer, the corn crop appeared in good condition. [redacted]

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Northern Provinces (Badghis, Faryab, Jowzjan, Balkh, Samangan, Kunduz, Takhar, and Badakhshan)

This region, covering the eight provinces bordering the Soviet Union, consists of many relatively large and isolated irrigated areas along rivers. Because of the large area under cultivation, this region has sometimes been

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referred to as the "breadbasket" of Afghanistan. Similar to the crop observed in 1982, yields in most of these provinces appeared only in the fair range, not as good as those in many other areas of the country because of the colder climate, and possibly poorer soils. The grain crop appeared somewhat better in Konduz where some of the fields were lightly lodged. In Jowzjan and Balkh provinces, over fifty percent of the cultivated areas imaged were fallow; however, this is not unusual for this region. Compared to other regions, shocks were smaller and sparser in most fields. In a few small tracts near Mazar-e Sharif and Sheberghan, a few fields were being harvested by mechanized equipment, the only such areas seen in all Afghanistan. The war appeared to have had little effect on agricultural production in this region and no significant military activity was observed in the cultivated areas.

Central Mountain Provinces (Bamian, Ghour, and Oruzgan)

This area of steep mountains and small narrow valleys, also known as the Hazarehjat Region, has the smallest percentage of cultivated land of any region. as of 15 March 1983, the crop was good and rainfall had been sufficient at that time. Very little imagery was received in areas other than the Bamian Valley, the most extensively cultivated area in these provinces. Here the crop appeared in good condition throughout the season. The harvest began on schedule in mid-July and continued until early September. This region is harvested later than any other major growing area because most of the crop is grown at elevations of greater than 2500 meters. The fertile Bamian valley had good to excellent yields this year, some of the best observed in all Afghanistan and even somewhat better than the good yields seen in 1982. Many fields in this valley had shocks covering most of the surface of the field. The effects of the war appeared minimal in this isolated valley. 25X1

Western Border Provinces (Herat, Farah, and Nimruz)

The three provinces bordering Iran are only marginal agricultural areas and only a small percentage of the land is actually cultivated. Crops are grown only in small irrigated areas along the few rivers. Imagery showed grains in good condition in most of the cultivated areas, and prior to the harvest many fields had lodged grain, normally a good indication of a healthy crop. The first grainfields were cut in early June, about the same time period as in 1982, and harvest activities continued without interruption until early July. Yields appeared similar to those in 1982; shocks in most harvested fields were closely spaced and threshing yards were active in many locations throughout the cultivated area. In late summer, the corn crop also appeared in good healthy condition and many fields had lush even growth. 25X1

Various reports from the press indicated much military activity in western Afghanistan during 1983. in early September severe food shortages in these provinces and no food available to the insurgents. However, imagery indicated that agricultural production here was only minimally affected. In a few areas military vehicles had driven through fields and small amounts of the grain crop had been damaged. With estimates of up to one-million Afghan refugees currently residing in Iran and assuming many of them came from these border provinces, the reduction in sown area or available labor appears only minimal. 25X1 25X1 25X1

The South (Helmand, Qandahar, and Zabol)

These provinces are mostly desert and crops are grown only in a narrow irrigated band along the Helmand River, around the city of Qandahar and in a few small valleys in Zabol Province. Along the Helmand, crops appeared in good condition and a few fields were lightly lodged. The harvest began on schedule in late May, and yields appeared in the good range, similar to that observed in 1982. In the cultivated area surrounding Qandahar City harvesting activities began about two weeks later, in early June. Here, yields appeared somewhat better than those in 1982. Shocks were thicker and more closely spaced and many more fields were harvested.

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[redacted] grain production was apparently not affected significantly by military activity.

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Soviet Imports/Aid

Afghanistan must import foreign grain each year, particularly wheat, to satisfy consumer demand. Although the rural population of Afghanistan is considered self-sufficient, the urban centers are receiving less food from the rural regions and must depend more on foreign imports, mostly from the USSR. The Soviet military occupation of Afghanistan has caused some disruption in the transportation system. This, along with the government's inability to collect grain in the insurgent controlled areas and the farmer's reluctance to sell to the government, have all contributed to food shortages.

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[redacted] as of the 28th of March 1983, 160,000 tons of wheat had already been delivered from the USSR. Wheat imports for 1983, according to FAS, totalled an estimated 350,000 metric tons, mainly from the USSR. According to FAS, the imports of foreign wheat have increased steadily over the last 5 years from a reported 200,000 metric tons imported in 1978.

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Reports of additional Soviet agricultural aid to Afghanistan are scarce [redacted] so it is difficult to assess the extent and impact of such aid. An Afghan radio broadcast in March stated that donation of goods and equipment worth 10,000,000 afghani were handed over to the Afghan trade union from representatives of the Soviet trade unions. Another broadcast, in September 1983, stated that Soviet experts are aiding in the set-up of six new model farms used to educate the Afghan farmers about modern, mechanized crop and livestock production. Still another report stated the number of tractors and combine harvesters, most of which were likely provided by the USSR, is 70 percent higher than in 1982.

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Outlook

Agricultural output for 1984 should be as good or slightly better than 1983, assuming the estimated trend toward increased area sown continues. Weather was good in the fall and sowing probably occurred on schedule, although precipitation during February and early March fell below seasonal norms in some areas. Mountain snows were adequate and should provide the water required for crop irrigation. Late winter weather patterns indicate continued near normal weather can be expected into early spring, which should provide a good start to the growing season. Assuming the favorable weather conditions continue throughout the season, only additional disruption in the transportation system from increased fighting, or an effort by the Soviets to

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destroy crops could have any significant affect on production this year. The interruption of agricultural infrastructure maintenance, primarily work on the irrigation systems, will create future problems, but should not significantly affect production in 1984.

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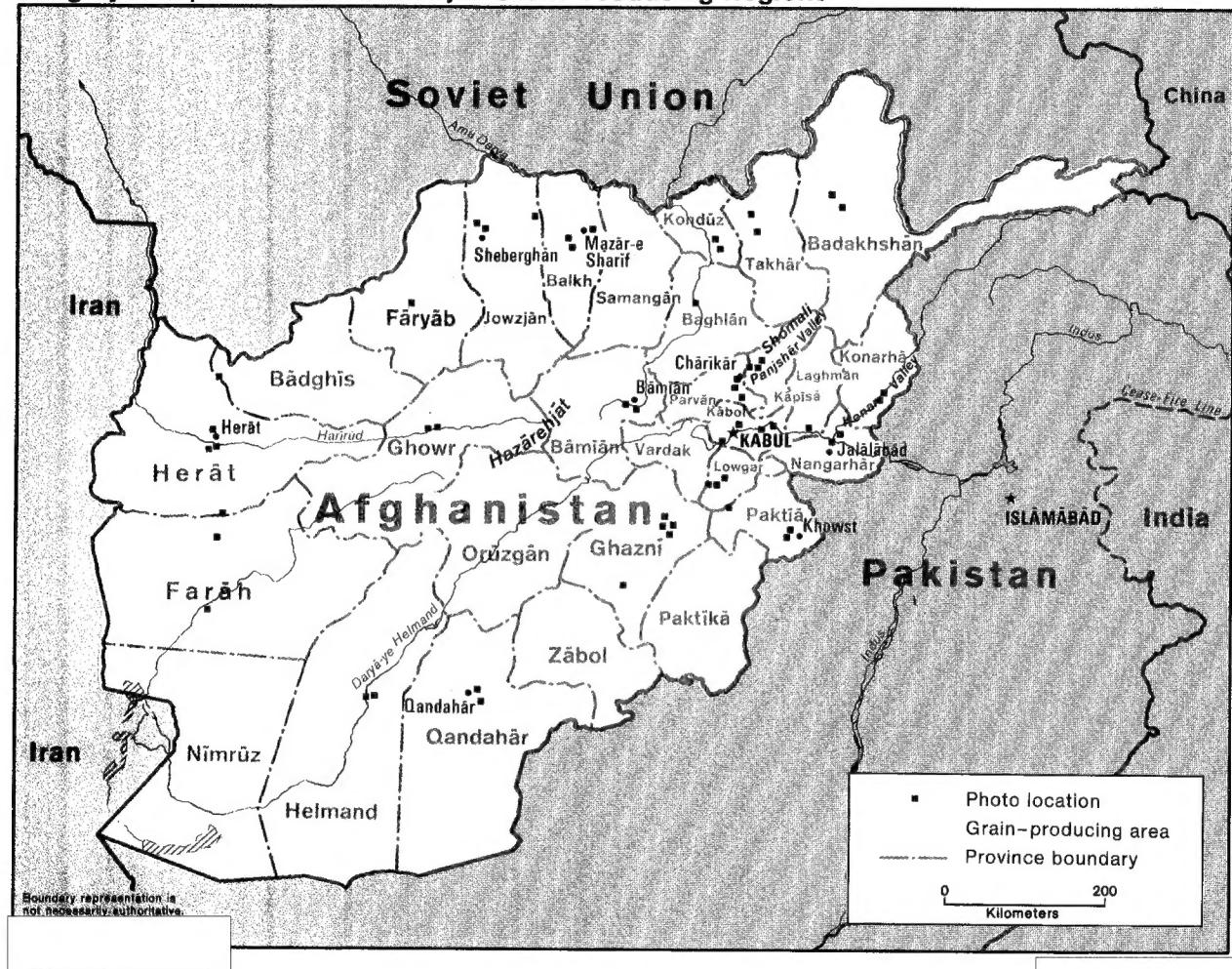
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Imagery Sample Areas in the Major Grain-Producing Regions



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